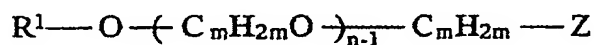


Claims

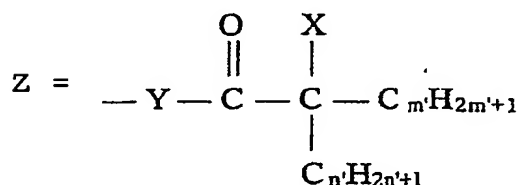
1. The use of block copolymers which were prepared by polymerization of a poly(alkylene oxide) compound (A) with at least one ethylenically unsaturated monomer compound (B), as dispersants and/or superplasticizers for aqueous suspensions of solids, the suspension of solids containing hydraulic binders based on cement, lime, gypsum and anhydrite.
2. The use as claimed in claim 1, characterized in that the block copolymers were prepared by reacting a poly(alkylene oxide) compound (A) of the general formula (I)



(I)

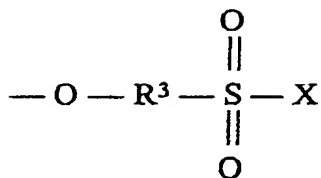
in which

R^1 = hydrogen, a C_1 - C_{20} -alkyl radical, a cycloaliphatic C_5 - C_{12} -cycloalkyl radical, an optionally substituted C_6 - C_{14} -aryl radical

 $m = 2$ to 4 $n = 1$ to 250 where $Y = O$ or NR^2

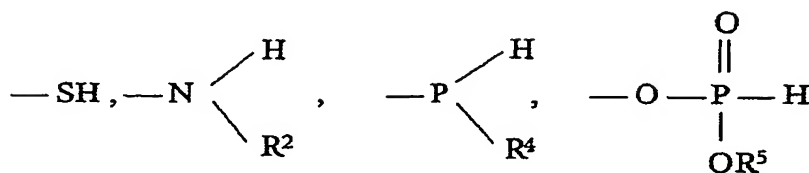
R^2 = H, a C_1 - C_{12} -alkyl radical, a C_6 - C_{14} -aryl radical

 $X = Cl$ or Br $m' = 1$ to 4 $n' = 0$ to 2 ,



where R³ = an optionally substituted C₆-C₁₄-arylene radical

X = Cl, Br



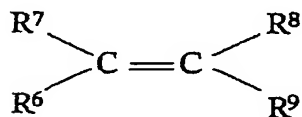
(V)

in which R⁴ is H, a C₁-C₁₂-alkyl radical, a C₅-C₈-cycloalkyl radical, a C₆-C₁₄-aryl radical, optionally substituted by hydroxyl, carboxyl or sulfo groups,

and R⁵ is C₁-C₁₂-alkyl, C₆-C₁₄-aryl

and R¹, R², m and n have the abovementioned meaning,

with an ethylenically unsaturated monomer compound (B) capable of free radical polymerization and of the general formula (II)



(II)

in which

R⁶ and R⁷ may be H, CH₃, COOH or salts thereof, COOR¹⁰, CONR¹⁰R¹⁰

R⁶ and R⁹ together may be O-CO-O

R⁸ may be H, CH₃ or -CH₂-COOR¹⁰

R⁹ may be COOR¹⁰, an optionally substituted C₆-C₁₄-aryl radical or OR¹¹

R¹⁰ may be H, C₁-C₁₂-alkyl, C₁-C₁₂-hydroxyalkyl

5 R¹¹ may be acetyl and

R¹, m and n have the abovementioned meaning.

10 3. The use as claimed in claim 1 or 2, characterized in that the reaction of the poly(alkylene oxide) compound (A) with the monomer component (B) was carried out in the form of a free radical polymerization.

15 4. The use as claimed in claim 3, characterized in that the reaction was effected in the form of an "atom transfer radical polymerization" (ATRP).

20 5. The use as claimed in any of claims 1 to 4, characterized in that the aryl radicals for R¹ are also substituted by hydroxyl, carboxyl and sulfo groups.

25 6. The use as claimed in any of claims 1 to 5, characterized in that, in formula (I), m is 2 or 3 and n is 5 to 250.

30 7. The use as claimed in any of claims 1 to 6, characterized in that R² is hydrogen or C₁-C₂-alkyl.

8. The use as claimed in any of claims 1 to 7, characterized in that m' is 1 and n' is 0 or 1.

35 9. The use as claimed in any of claims 1 to 8, characterized in that the arylene radical R³ also has halo, hydroxyl, C₁-C₁₂-alkoxy, C₁-C₁₂-dialkylamino or carboxyl groups.

10. The use as claimed in any of claims 1 to 9, characterized in that R^6 and R^7 are H, R^6 and R^9 together are O-CO-O, R^8 is H, CH_3 or CH_2COOR^{10} and R^9 is $COOR^{10}$ or is a phenyl radical optionally substituted by hydroxyl, carboxyl or sulfo groups.
11. The use as claimed in any of claims 1 to 10, characterized in that R^6 and R^7 are H, R^8 is H or CH_3 and R^9 is $COOR^{10}$.
12. The use as claimed in any of claims 1 to 11, characterized in that R^6 and R^7 are H, R^8 is H or CH_3 and R^9 is COOH or salts thereof or $COOR^{12}$ and R^{12} is tert-butyl or C_1 - C_6 -hydroxyalkyl.
13. The use as claimed in any of claims 1 to 12, characterized in that the reaction of the poly (alkylene oxide) compound (A) and the monomer compound (B) was carried out in the presence of an inimer compound.
14. The use as claimed in claim 13, characterized in that the inimer compounds used are those which were prepared by esterification of hydroxy-functionalized monomers, such as, for example, hydroxyethyl methacrylate (HEMA), with ATRP initiators, such as, for example, halopropionic acids.
15. The use as claimed in claim 13, characterized in that the inimer compounds used were those which were obtained by sulfochlorination of styrene.
16. The use as claimed in any of claims 1 to 15, characterized in that the reaction was effected in the temperature range from 20 to 110°C.
17. The use as claimed in any of claims 1 to 16,

characterized in that the block copolymers are used in an amount of from 0.01 to 5% by weight, based on the suspension of solids.

5 18. The use as claimed in any of claims 1 to 17,
characterized in that the suspension of solids
contains inorganic particles selected from the
group consisting of crushed rock, silicate powder,
10 chalk, clays, porcelain slip, talc, pigments and
carbon black.

19. The use as claimed in any of claims 1 to 17,
characterized in that the suspension of solids
contains organic particles, such as, for example,
15 plastics powder.